

### REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application. Claims 1-3 and 4-12 are currently pending in this application. Claims 5-6 have been withdrawn from consideration. No new matter has been added by way of the present amendment. For instance, claims 1 and 7 have been amended to more clearly recite the features of the present invention. New claims 11 and 12 are supported by previously presented claim 1. Accordingly, no new matter has been added.

In view of the amendments and remarks herein, Applicants respectfully request that the Examiner withdraw all outstanding rejections and allow the currently pending claims.

#### Issues under 35 U.S.C. 112, 2<sup>nd</sup> paragraph

Claims 1-3 and 7-10 stand rejected under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Applicants respectfully traverse.

The Examiner argues that the language “the coat of the chemical-resistant polymeric compound coating the porous film base is not porous” is improper. Specifically, the Examiner asserts that “since the topology of the coating duplicates the microporous structure of the porous film base, it is improper to describe the coating as ‘not porous’.” The Examiner recommends that Applicants amend the recitation in claim 1, lines 12-13 to “better clarifying language.”

In order to advance prosecution of the present invention, Applicants have amended the claims in accordance with the Examiner’s recommendations. Accordingly, this rejection is moot.

Reconsideration and withdrawal of this rejection are thus respectfully requested.

**Issues Under 35 U.S.C. 102/103**

Claims 1-3 and 7-10 stand rejected as being anticipated by or, in the alternative, as being obvious over Zhang et al. (US 2004/0086782) (hereinafter “Zhang”). Applicants respectfully traverse.

The Examiner asserts that Zhang discloses a separator which “has inherently multiplicity of communicating micropores as required ion passages for battery function.” Moreover, the Examiner asserts that “[t]he separator is necessarily chemical resistant to the battery electrode.” Additionally, the Examiner argues that “[t]he phase inversion manufacturing process inherently converts a solidifying polymer solution into a microporous membrane.” As such, the Examiner concludes that “[a]bsence (sic) any composition limitation to the film base, Zhang’s membrane of a single polymer, e.g., polyester, reads on both the film base and the solid coating layer over the cell walls throughout the porous film base.”

The Examiner acknowledges that Zhang is silent with regard to porosity, average pore size and thickness of the membrane. However, the Examiner takes the position that “workable pore size, porosity and thickness are deemed to be either anticipated, or obvious routine optimizations, dictated by same end use.”

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of anticipation or obviousness. For anticipation under 35 U.S.C. §102, the reference must teach each and every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993). To establish

inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present". *In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949 (Fed. Cir. 1999). The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *Id.*

To establish a *prima facie* case of obviousness, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). "[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability." *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ 2d 1385 (U.S. 2007). There must be a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* The Supreme Court of the United States has recently held that the "teaching, suggestion, motivation test" is a valid test for obviousness, albeit one which cannot be too rigidly applied. *Id.* "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.* (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

The present invention is directed, *inter alia*, to a porous film with chemical resistance, comprising a film base, a multiplicity of communicating micropores having an average pore size of 0.01  $\mu\text{m}$  or more and 5  $\mu\text{m}$  or less, and a chemical-resistant polymeric compound which coats the film base. The chemical-resistant polymeric compound in the present invention covers the porous film base but does not cover or fill the pores or voids in the porous film (see, e.g., claim 1).

In a preferred embodiment of the present invention, (a) the claimed porous film comprises a film base and a coat of a chemical-resistant polymeric compound, (b) the film base comprises at least one selected from the group consisting of amide-imide polymers, imide polymers, polyethersulfones, polysulfones, acrylic polymers, and cellulose acetates, and (c) the coat of the chemical-resistant polymeric compound comprises at least one selected from the group consisting of phenolic resins, urea resins, melamine resins, benzoguanamine resins, polyimide resins, epoxy resins, benzoxazine resins, polypropylene resins, polyurethane resins, fluororesins, alkyd resins, cellulose acetate resins, phthalic resins, maleic resins, silicone resins, triazine resins, furan resins, polyester resins, xylene resins, poly(vinyl alcohol)s, ethylene/vinyl alcohol copolymers, chitins, and chitosans (see, e.g., new claim 11). Applicants submit that Zhang fails to teach or suggest a porous film as claimed.

Zhang discloses a battery separator comprising a microporous thermoplastic membrane and an adjuvant coated thereon (see [0011]). However, Zhang fails to teach or suggest at least the following presently claimed limitations:

- (a) a porous film comprising a film base, a multiplicity of communicating micropores having an average pore size of 0.01  $\mu\text{m}$  or more and 5  $\mu\text{m}$  or less, and a chemical-resistant polymeric compound which coats the film base;
- (b) the film base and the multiplicity of communicating micropores are produced by a phase conversion method in which mixtures containing polymers are cast as films and then introduced to solidifying liquids;
- (c) an average rate of open pores inside the porous film (porosity) is 30% to 80%;

- (d) an amount of the coat of the chemical-resistant polymeric compound is 0.01 to 50 percent by weight relative to the porous film;
- (e) the coat of the chemical-resistant polymeric compound coating the film base forms a thin solid layer over cell wall surfaces throughout the porous structure of the film base and is formed by subjecting a solution of the chemical-resistant polymeric compound or a precursor thereof dissolved in a solvent which can dissolve the polymeric compound or a precursor thereof to a coat forming procedure, with or without further subjecting the coat formed to treatment with at least one selected from the group consisting of heat, ultraviolet rays, visible radiations, electron beams, and radioactive rays; and
- (f) the porous film maintains the properties of the film base.

The Examiner appears to believe that the microporous thermoplastic membrane of Zhang inherently comprises a film base and communicating micropores, each of which inherently meet all the claimed limitations, such as average pore size, average rate of open pores inside the porous film, amount of coat of the chemical-resistant polymeric compound relative to the porous film, etc. Applicants respectfully and strongly disagree and submit that the Examiner has not fulfilled his burden of establishing a *prima facie* case of anticipation or obviousness.

As directed by MPEP 2112, in relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art (*Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)). In the present case, the Examiner has not provided either objective evidence nor technical reasoning to

support the conclusion of inherency. For this reason alone, this rejection is improper and should be withdrawn.

Moreover, Applicants note that, in the Office Action of August 26, 2009, the Examiner asserted that “[absent] any composition limitation to the film base, Zhang’s membrane of a single polymer, e.g., polyester, reads on both the film base and the solid coating layer over the cell walls throughout the porous film base.” As such, and in order to expedite the prosecution of the present application, Applicants have added a new claim (e.g., claim 11) which defines the composition of the film base and the coat of the chemical-resistant polymeric compound.

Evidently, contrary to the Examiner’s assertion, the polyester film of Zhang does not in any way anticipate or render obvious the novel porous film of the present invention, as defined in pending independent claims 1, 7 and 11.

In view of the above, reconsideration and withdrawal of this rejection are respectfully requested.

### **Conclusion**

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and objections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Vanessa Perez-Ramos, Reg. No.

61,158 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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